Management of manure from local dairy farm.

What you can do to Stop Nonpoint Source Water Pollution!

Develop local Master Plan policies and implementation strategies. Get them adopted and used by the Planning Board when reviewing and approving Site and Subdivision Plans.

Encourage your officials to develop construction erosion and sedimentation control ordinances.

Apply lawn and garden chemicals sparingly and according to directions.

Use the household hazardous waste collection events.

Wash your car on grass, not the driveway.

Clean up spilled brake fluid, oil, and grease on driveway.

Inspect and clean your septic system every 3 to 5 years.

Municipal Actions Maintain Water Quality

Our water resources in the region are a valuable resource. Protection of water quality, which directly contributes to the quality of the environment and our lives, should be a priority. NPS pollution prevention is a key area wherein the decisions and actions of our land use boards play a significant and lasting benefit on the water quality. Municipal leaders and boards can reduce these pollutants by adopting basic planning policies and implementing a nonpoint source water pollution strategies.

Master Plan Policies

The first step a community should take is the development of comprehensive Master Plan policies that address water quality issues. These policies, derived from federal and state regulations, establish the legal basis for local adoption of development ordinances and land use regulations.

Strategies

Nonpoint source water pollution prevention strategies may vary by region or local authority depending upon the water resources and the level of development. Most municipal strategies include the adoption of Best Management Practices (BMPs) into local ordinances and regulations. Several communities within the SRPC region already have adopted such ordinances or regulations. Other communities are encouraged to consider these BMPs. Two examples of BMPs include:

1. "Better Site Design" through Conservation/Cluster Development. This assists in reducing NPS pollution in multiple ways:
   - Reduces the impervious cover in a development. Impervious cover contributes to degradation of water resources by increasing the volume of surface runoff, and preventing infiltration into the soil surface.
   - Reduces rainfall pollutant loads to streams and other water resources.
   - Reduces potential pressure to encroach on resource buffer areas.
   - Reduces soil erosion potential by reducing the amount of clearing and grading on the site.
   - Preserves green space.
   - Reduces the cost of stormwater management by concentrating runoff in one area and reducing runoff volumes.
   - Provides a wider range of feasible sites to locate stormwater best management practices (BMPs).

2. Erosion and Sediment Controls
   - Strictly controlled or no clearing in the following areas: stream buffers, forest conservation areas, wetlands, springs, highly erodible soils, and stormwater infiltration areas.
   - Integrate erosion and sediment controls into watershed, wetlands, lake, stream or river protection overlay zones.
   - Soil stabilization through the reestablishment of cover within two weeks, using hydroseeding or bark/mulch/straw in colder climates until seeding is possible.
   - Construction phasing provisions on larger sites.
   - Perimeter controls to retain or filter runoff. These might include earthen dikes or silt fences.
   - Catch or trap basins to capture suspended sediments during large storms.

Nonpoint Source Pollution Facts

- **Runoff is the term used to describe rainwater or melting snow that travels over impervious surfaces, like roads and roofs, and flows into streams and coastal waters.**
- **Polluted runoff occurs when this water picks up contaminants.**
- **This type of water pollution has many sources – not a single source, like a pipe.**
- **The sources may be fertilizers, herbicides, pesticides, bacteria and nutrients from livestock, failed septic systems, pet waste, road salt, oil and grease.**
- **It is called nonpoint source pollution, and it is the largest source of water quality degradation in the country.**
- **Development creates more impervious surfaces in the form of buildings, roads, parking lots, and driveways.**
- **Impervious surface coverages over 10% lead to water quality impacts.**
- **Impervious surface coverages are on the rise in all communities within the Strafford region**.

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HOW TO Planning Series

Protect Water Quality by Managing Nonpoint Source Water Pollution

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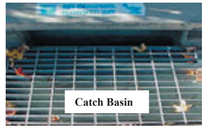
Introduction

Have you wondered why there are signs on our coastal beaches and riverfront trails asking people to remove pet waste? Why are hay bales and black plastic fences placed next to wetlands at construction sites? And why do we clean parking lot catch basins? The answer is to prevent nonpoint source water pollution. The purpose of this guide is to explain what this is, why it is important, and what you can do.

Nonpoint Source Water Pollution: what is it?

When it rains or the snow melts, or we irrigate land, water flows over the land and through the ground. The water that flows off the land and into receiving waters is called runoff. As the water moves it can pick up and carry away natural and human made pollutants. Pollutants carried in the runoff are eventually deposited into wetlands, lakes, rivers, coastal waters, and underground drinking water sources. Scientists call this type of water pollution nonpoint source because it does not have a single point of origin, nor is it introduced from a single outlet.

Pet Wastes



Pollutants also can come from both air deposits and land uses. The source could be: soil erosion from construction sites; crop and forestlands; oil, grease, and toxic chemicals from parking lots and highways; excess fertilizers and herbicides from agricultural lands, golf courses, and lawns; bacteria and nutrients from livestock, pet wastes and faulty septic systems.

Since the polluted runoff comes from a combination of what people do on the land, all of us are part of the problem, and the solution.

State Programs Provide Help for Coastal Communities

The federal Clean Water and Coastal Zone Acts established state programs to assist local municipalities with nonpoint source water pollution activities and funding. The Department of Environmental Services administers a statewide program within the Watershed Assistance Section (www.des.state.nh.us/wmb) and a program for the 42 coastal communities within the NH Coastal Program (www.des.state.nh.us/Coastal).

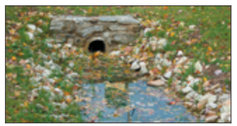
The Coastal Nonpoint Pollution Control Program's goals are to strengthen the link between federal and state coastal zone management and water quality management programs, and to support local efforts to manage land use activities that may degrade coastal waters and habitats. The CNPCP staff provides technical assistance, grants, public education and outreach, water quality monitoring and research support, and coordination efforts.

New Hampshire Nonpoint Source Water Pollution Plan

The 1999 New Hampshire Nonpoint Source Management Plan describes the goals, objectives, and actions for watershed management. The Plan identifies and ranks specific nonpoint source categories as follows: 1. stormwater runoff, 2. hydromodification, 3. subsurface systems, 4. junk, salvage and reclamation yards, 5. construction, 6. marinas and recreational boating, 7. road maintenance, 8. unlined landfills, 9. land disposal of sludge, or biosolids, 10. land disposal of septage, 11. agriculture, 12. timber harvesting, 13. resource extraction, 14. storage tanks, 15. golf courses and landscaping.

Stormwater Runoff

Stormwater runoff is precipitation that falls onto impervious surfaces, such as parking lots and roads, and flows over the ground surface rather than infiltrating through the soil. Stormwater runoff becomes a problem when pollutants deposited on the ground surface flow into and contaminate nearby surface waters. With increasing amounts of impervious cover, there is a reduction in the ability of stormwater to be treated through natural processes such as ground infiltration.



Designing and implementing stormwater technologies that treat and control stormwater is one way to reduce pollutant concentrations before they are discharged into surface waters, groundwater, and wetlands. Such technologies include retaining natural vegetation, insulating wetlands through buffer strips, and using erosion control techniques.

Hydromodification

Hydromodification describes activities and structures that alter the natural flow of water, such as channelization, dams, culverts, bridges, stream bank and shoreline erosion, removal of vegetation along water bodies, and wetlands alteration.

Subsurface Disposal Systems (Septic)

Lakes, ponds, streams and groundwater are vulnerable to contamination from septic systems that are malfunctioning or overflowing. Approximately 75% of new residential developments in New Hampshire use septic systems. Proper septic system management includes an inspection and emptying every 3 to 5 years.

The primary concern for nonpoint source pollution comes from older non-regulated (pre 1967) systems that are still in use. Strict controls have been established by the state for the installation of new systems including design standards, lot size and capacity, and environmental setbacks. Local municipal controls may be greater depending upon the area and risk level.

Junk, Salvage and Reclamation Yards

Junkyards, salvage yards, and reclamation yards are defined as businesses maintained and operated, and used for storing, buying, processing, or selling damaged or unregistered motor vehicles, vehicle parts, scrap metals, junk machinery, or other materials intended for salvage. Loosely regulated, these establishments have the potential to harm groundwater because of potential contaminants associated with the materials located within these establishments.

Swale

The Stormwater Center at the University of New Hampshire

This Center studies stormwater-related water quality and quantity issues. They have a field facility in Durham to evaluate and verify the performance of stormwater management devices and technologies.

Currently 15 different management systems are being comparison tested under controlled conditions.

Systems being tested include infiltration and filtration devices, detention ponds, permeable pavement, bio-retention systems, and swirl separators.

Information is available through demonstrations, courses, website, and publications.

Go to the website www.unh.edu/erg/cstev for more information.

Road Surface

What is Impervious Surface Coverage?

The development of homes, commercial and industrial centers creates hard surfaces that water cannot penetrate. These hard surfaces, such as roofs and roads, are called impervious cover. The more impervious coverage there is, the more runoff there is during storms and snow melts.

Numerous studies have found that water quality deteriorates abruptly when impervious levels exceed 10% of the watershed areas. According to the New Hampshire Estuaries Project *State of the Estuaries 2003 Report*, impervious surface coverage is on the rise in all communities within the Strafford Regional Planning Commission area. (www.nhep.unh.edu).

Land use practices that reduce runoff or intercept runoff before it reaches a water body assist in the reduction of impacts from the impervious surface coverage. Infiltration of water into the ground restores groundwater levels and cleans the water

Impervious surface coverage in coastal watershed towns

Municipality	Land Area (ac)	Impervious Surface (acres) 1990	2000	(% of land area)[2] 1990	2000	Percent Change 1990-00
BARRINGTON[1]	29,719	763	1,187	1.9% - 3.2%	3.3% - 4.7%	55.44% [3]
BRENTWOOD	10,742	532	829	4.3% - 5.6%	7.1% - 8.4%	55.76%
BROOKFIELD	14,593	139	191	0.3% - 1.6%	0.6% - 2.0%	37.07%
DOVER	17,094	1,873	2,626	10.3% - 11.6%	14.7% - 16.0%	40.26% [4]
DURHAM	14,308	675	1,026	4.1% - 5.4%	6.5% - 7.8%	51.93%
FARMINGTON	23,221	687	966	2.3% - 3.6%	3.5% - 4.8%	40.53%
LEE	12,680	468	740	3.0% - 4.4%	5.2% - 6.5%	58.36%
MADBURY	7,403	251	394	2.7% - 4.1%	4.7% - 6.0%	56.53%
MIDDLETON	11,560	204	284	1.1% - 2.4%	1.8% - 3.1%	38.96%
MILTON	21,099	597	839	2.2% - 3.5%	3.3% - 4.6%	40.39%
NEW DURHAM	26,347	458	628	1.1% -2.4%	1.7% -3.0%	37.00%
NEWMARKET	8,073	480	707	5.3% -6.6%	8.1% -9.4%	47.29% [5]
NORTHWOOD	17,976	424	610	1.7% -3.0%	2.7% -4.1%	43.85%
NOTTINGHAM	29,880	448	693	0.8% -2.2%	1.7% -3.0%	54.66%
ROCHESTER	28,331	2,395	3,304	7.8% -9.1%	11.0% -12.3%	37.96%
ROLLINSFORD	4,682	266	381	5.0% -6.3%	7.5% -8.8%	43.62%
SOMERSWORTH	6,220	768	1,021	11.7% -13.0%	15.8% -17.1%	33.02%
STRAFFORD	31,153	434	638	0.7% -2.1%	1.4% -2.7%	46.97%
WAKEFIELD	25,264	878	1,225	2.8% -4.1%	4.2% -5.5%	39.52%

(1) The percent change from 1990 to 2000 based on mid-point of %impervious ranges for the two years.
(2) Confidence intervals for %impervious values correspond to the error bars for an average size town with inperviousness
(3) Blue highlighting indicates those SRPC municipalities exhibiting impervious surface increase greater than 50%.
(4) Red highlighting indicates those SRPC municipalities for which the mid-point of the %impervious range is above10%.
(5) Orange highlighting indicates those SRPC municipalities for which the mid-point of the %impervious range is between 8% and 10%.